

## CLAIMS

What is claimed is:

1. An aqueous polymer emulsion composition resistant to biodeteriogenic  
microbe contamination comprising an aqueous polymer emulsion stabilized with a  
5 protective colloid and a cationic compound selected from the group consisting of a  
substituted guanidine salt, a substituted pyridinium salt, a tetrasubstituted ammonium  
salt, a polymeric cationic compound, and mixtures thereof, wherein the substituted  
guanidine salt and the substituted pyridinium salt are substituted with an alkyl, a  
cycloalkyl, or an aryl group containing 2 to 18 carbons and the tetrasubstituted  
10 ammonium salt is substituted with one or more of an alkyl, a cycloalkyl, and/or an aryl,  
said polymer emulsion containing little or no nonionic or anionic surfactants and little or  
no anionic substituents.
2. The polymer emulsion composition of claim 1, wherein the protective colloid is  
poly(vinyl alcohol) or hydroxyethyl cellulose.
- 15 3. The polymer emulsion composition of claim 1, wherein the protective colloid is  
poly(vinyl alcohol).
4. The polymer emulsion composition of claim 3, wherein the cationic compound  
is selected from the group consisting of *n*-dodecylguanidine hydrochloride, cetyl  
pyridinium chloride, didecyltrimethylammonium chloride, poly(hexamethylenebiguanide)  
20 hydrochloride, and mixtures thereof.
5. The polymer emulsion composition of claim 3, wherein the cationic compound  
is *n*-dodecylguanidine hydrochloride.
6. The polymer emulsion composition of claim 3 further comprising one or more  
other industrial biocide.

7. The polymer emulsion composition of claim 6 wherein the one or more other industrial biocide is 5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, or mixtures thereof.

8. The polymer emulsion composition of claim 3 wherein the polymer emulsion is selected from the group consisting of a poly(vinyl acetate-co-ethylene), poly(vinyl acetate), poly(vinyl acetate-butyl acrylate), poly(vinyl acetate-(2-ethyl)hexyl acrylate), a polyacrylic, a polymethacrylic, a poly(styrene-acrylic), and poly(vinyl chloride-co-ethylene).

9. The polymer emulsion composition of claim 8 wherein the polymer emulsion is a poly(vinyl acetate-co-ethylene) or a poly(vinyl acetate).

10. A method for preventing biodeteriogenic microbe contamination in polymer emulsions containing a protective colloid comprising:

mixing an effective amount of one or more cationic compounds with said polymer emulsion, said cationic compound selected from the group consisting of a substituted guanidine salt, a substituted pyridinium salt, a tetrasubstituted ammonium salt, a polymeric cationic compound, and mixtures thereof, wherein the substituted guanidine salt and the substituted pyridinium salt are each individually substituted with an alkyl, a cycloalkyl, or an aryl group containing 2 to 18 carbons and the tetrasubstituted ammonium salt is substituted with one or more of an alkyl, a cycloalkyl, and/or an aryl, said polymer emulsion containing little or no nonionic or anionic surfactants and little or no anionic substituents.

11. The method of claim 10, wherein the protective colloid is poly(vinyl alcohol) or hydroxyethyl cellulose.

12. The method of claim 10, wherein the protective colloid is poly(vinyl alcohol).

13. The method of claim 12, wherein the cationic compound is selected from the group consisting of *n*-dodecylguanidine hydrochloride, cetyl pyridinium chloride,

didecyldimethylammonium chloride, poly(hexamethylenebiguanide) hydrochloride, and mixtures thereof.

14. The method of claim 12, wherein the cationic compound is *n*-dodecylguanidine hydrochloride.

5           15. The method of claim 12 further comprising mixing one or more other industrial biocide with the polymer emulsion.

16. The method of claim 15 wherein the one or more other industrial biocide is 5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, or mixtures thereof.

10           17. The method of claim 12 wherein the polymer emulsion is selected from the group consisting of a poly(vinyl acetate-co-ethylene), poly(vinyl acetate), poly(vinyl acetate-butyl acrylate), poly(vinyl acetate-(2-ethyl)hexyl acrylate), a polyacrylic, a polymethacrylic, a poly(styrene-acrylic), and poly(vinyl chloride-co-ethylene).

18. The method of claim 17 wherein the polymer emulsion is a poly(vinyl acetate-co-ethylene) or a poly(vinyl acetate).

15           19. The method of claim 12, wherein the amount of the one or more cationic compounds ranges from 10 ppm to 1 wt %, based on the wet weight of the polymer emulsion.

20           20. The method of claim 12, wherein the amount of the one or more cationic compounds ranges from 50 ppm to 5000 ppm, based on the wet weight of the polymer emulsion.

21. An adhesive composition comprising the aqueous polymer emulsion composition of claim 1, wherein said adhesive composition is resistant to biodeteriogenic microbe contamination.

1. The first part of the paper is devoted to a review of the literature on the topic. It starts with a general overview of the field, followed by a more detailed discussion of the specific issues at hand. The author then presents his own findings, which are based on a series of experiments. These findings are then compared with the results of previous studies, and the author discusses the implications of his work. Finally, the paper concludes with a summary of the main points and some suggestions for future research.

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0 to 20 parts by weight of a humectant;

0 to 35 parts by weight of a tackifier;

0 to 10 parts by weight of poly(vinyl alcohol); and

0 to 40 parts by weight of a filler.